

What is claimed is:

1. A wireless LAN access authentication system in a network system comprising a plurality of wireless LAN
5 network systems and a center station that controls said plurality of wireless LAN network systems in a centralized manner,

each of said plurality of wireless LAN network systems comprising at least two access point sections
10 accessed by a radio terminal apparatus that transmits/receives a radio signal through a radio section and a gateway apparatus which relays transmission/reception of data signals and control signals between said access point sections,

15 said center station comprising a center station gateway apparatus that relays transmission/reception of data signals and control signals between the gateway apparatuses of said plurality of wireless LAN network systems and an authentication server that performs access
20 authentication on said radio terminal apparatus which has accessed said access point sections and distributes cryptographic keys used for encryption of a radio section through which said access-authenticated radio terminal apparatus carries out communication to said radio
25 terminal apparatus and said access point section,

said wireless LAN access authentication system comprising:

an access control section provided for each of said

plurality of wireless LAN network systems for controlling the situation of access of said radio terminal apparatus in the own communication area to said authentication server and checking the presence/absence of access of said radio terminal apparatus to said authentication server when said radio terminal apparatus moves to a communication area of a new access point section; and

a cryptographic key control section provided for each of said plurality of wireless LAN network systems for controlling cryptographic keys distributed from said authentication server and distributing, when said access control section confirms that said radio terminal apparatus which has moved to the communication area of the other access point section has already accessed said authentication server, the cryptographic key for said radio section through which said radio terminal apparatus carries out communication to said radio terminal apparatus and said new access point section in the area to which said radio terminal apparatus has moved.

2. The wireless LAN access authentication system according to claim 1, wherein said access control section and said cryptographic key control section are arranged in said gateway apparatus.

3. The wireless LAN access authentication system according to claim 2, wherein said access control section comprises a control section that controls at least one

access amount of an access time of said radio terminal apparatus or communication packet amount and requests said radio terminal apparatus for reauthentication when said access amount reaches a predetermined amount.

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4. The wireless LAN access authentication system according to claim 1, wherein said radio terminal apparatus comprises an information card which records ID information and uses the ID information recorded in
10 said information card as an authentication ID at the time of access authentication of said radio terminal apparatus.

5. A wireless LAN access authentication method in a
15 network system comprising a plurality of wireless LAN network systems and a center station that controls said plurality of wireless LAN network systems in a centralized manner,

each of said plurality of wireless LAN network
20 systems comprising at least two access point sections accessed by a radio terminal apparatus that transmits/receives a radio signal through a radio section and a gateway apparatus which relays transmission/reception of data signals and control
25 signals between said access point sections, and

said center station comprising a center station gateway apparatus that relays transmission/reception of data signals and control signals between the gateway

apparatuses of said plurality of wireless LAN network systems and an authentication server that performs access authentication on said radio terminal apparatus which has accessed said access point sections and distributes
5 cryptographic keys used for encryption of a radio section through which said access-authenticated radio terminal apparatus carries out communication to said radio terminal apparatus and said access point section,

10 said wireless LAN access authentication method comprising:

an access control step of controlling the situation of access of said radio terminal apparatus in each of said wireless LAN network systems to said authentication server and checking the presence/absence of access of
15 said radio terminal apparatus to said authentication server when said radio terminal apparatus moves to a communication area of a new access point section; and

a cryptographic key control step of controlling cryptographic keys distributed from said authentication
20 server and distributing, when it is confirmed in said access control step that the radio terminal apparatus which has moved to the communication area of the other access point section has already accessed said authentication server, the cryptographic key for the
25 radio section through which said radio terminal apparatus carries out communication to said radio terminal apparatus and said new access point section in the area to which said radio terminal apparatus has moved.

6. An authentication server placed in a center station which carries out access authentication of a radio terminal apparatus in a wireless LAN access

5 authentication system in a network system comprising a plurality of wireless LAN network systems and a center station that controls said plurality of wireless LAN network systems in a centralized manner,

each of said plurality of wireless LAN network
10 systems comprising at least two access point sections accessed by a radio terminal apparatus that transmits/receives a radio signal through a radio section and a gateway apparatus that relays transmission/reception of data signals and control
15 signals between said access point sections,

said center station comprising a center station gateway apparatus that relays transmission/reception of data signals and control signals between the gateway apparatuses of said plurality of wireless LAN network
20 systems,

said authentication server comprising:

an access authentication section that performs access authentication when said radio terminal apparatus accesses a predetermined access point section of each
25 of said wireless LAN networks; and

a cryptographic key distribution section that distributes cryptographic keys of a radio section through which said radio terminal apparatus accesses each gateway

apparatus of each of said wireless LAN networks all together.

7. A gateway apparatus in each of wireless LAN networks
5 in a wireless LAN access authentication system in a network
system comprising a plurality of wireless LAN network
systems and a center station that controls said plurality
of wireless LAN network systems in a centralized manner,
each of said plurality of wireless LAN network
10 systems comprising at least two access point sections
accessed by a radio terminal apparatus that
transmits/receives a radio signal through a radio
section,

said center station comprising a center station
15 gateway apparatus that relays transmission/reception of
data signals and control signals between the gateway
apparatuses of said plurality of wireless LAN network
systems and an authentication server that performs access
authentication on said radio terminal apparatus which
20 has accessed said access point section and distributes
cryptographic keys used for encryption of a radio section
through which said access-authenticated radio terminal
apparatus carries out communication to said radio
terminal apparatus and said access point section,

25 said gateway apparatus comprising:

a transmission/reception section that
transmits/receives said data signals and said control
signals to/from the center station gateway apparatus of

said center station;

an access control section that controls the situation of access of said radio terminal apparatus to said authentication server within each of said wireless LAN networks and checks the presence/absence of access of said radio terminal apparatus to said authentication server when said radio terminal apparatus moves to a communication area of a new access point section; and

a cryptographic key control section that controls said cryptographic keys distributed from said authentication server through said access control section and distributes, when it is confirmed that said radio terminal apparatus which has moved to the communication area of the other access point section has already accessed said authentication server, said cryptographic key for the radio section through which said radio terminal apparatus carries out communication to said radio terminal apparatus and the new access point section in the area to which said radio terminal apparatus has moved.

8. The gateway apparatus according to claim 7, wherein said access control section comprises a control section that controls an access amount of at least one of an access time or communication packet amount of said radio terminal apparatus and requests said radio terminal apparatus for reauthentication at the time at which said access amount has reached a predetermined amount.

9. A radio terminal apparatus used in a wireless LAN access authentication system in a network system comprising a plurality of wireless LAN network systems and a center station which controls said plurality of wireless LAN network systems in a centralized manner,
5 each of said plurality of wireless LAN network systems comprising at least two access point sections accessed by a radio terminal apparatus transmitting/receiving a radio signal through a radio section and a gateway apparatus that relays
10 transmission/reception of data signals and control signals between said access point sections,
said center station comprising a center station gateway apparatus that relays transmission/reception of
15 data signals and control signals between the gateway apparatuses of said plurality of wireless LAN network systems and an authentication server that performs access authentication on said radio terminal apparatus which has accessed said access point section and distributes
20 the cryptographic key used for encryption of the radio section through which said access-authenticated radio terminal apparatus carries out communication to said radio terminal apparatus and said access point section,
said radio terminal apparatus comprising an
25 information card in which ID information is recorded when access authentication is performed by said authentication server of said center station.